

21 DEC 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



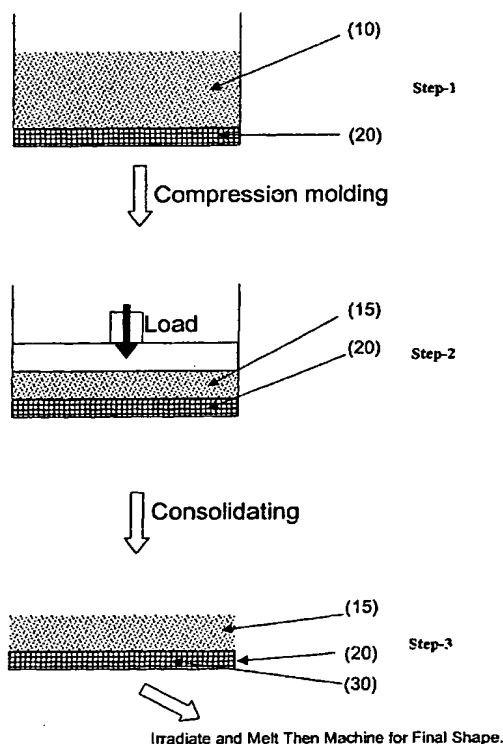
(43) International Publication Date  
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number  
WO 2004/000159 A3

- (51) International Patent Classification<sup>7</sup>: B29C 43/18, 43/20, A61L 2/08, 9/22, 31/12
- (21) International Application Number: PCT/US2003/018053
- (22) International Filing Date: 10 June 2003 (10.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/390,120 21 June 2002 (21.06.2002) US  
60/424,709 8 November 2002 (08.11.2002) US
- (71) Applicant (for all designated States except US): MASSACHUSETTS GENERAL HOSPITAL [US/US]; Thirteenth Street, Building 149, Suite 5036, Charlestown, MA 02129-2000 (US).
- (72) Inventors; and  
(75) Inventors/Applicants (for US only): MURATOGLU, Orhun, K. [TR/US]; 5 Dana Street, Cambridge, MA 02138 (US). HARRIS, William, H. [US/US]; 665 Concord Avenue, Belmont, MA 02178 (US).
- (74) Agents: ISACSON, John, P. et al.; HELLER EHRMAN WHITE & MCAULIFFE LLP, 1666 K Street, N.W., Suite 300, Washington, DC 20006-1228 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
- [Continued on next page]

(54) Title: METAL BACK OR MESH CROSSLINKING



(57) Abstract: The present invention relates to medical implants that comprise crosslinked polyethylene (UHMWPE) (10) that is pressed into a consolidated form (15) in contact with another piece (such as a metallic mesh or back, a non-metallic mesh or back, a tibial tray, a patella tray, or an acetabular shell) (20) thereby forming an interface, and a hybrid component (30). Also disclosed herein are the methods of manufacturing and sterilizing such medical devices and materials used therein.

WO 2004/000159 A3



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
29 December 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

21 DEC 2004

Applicant's or agent's file reference 37697-0076	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/18053	International filing date ( <i>day/month/year</i> ) 10 June 2003 (10.06.2003)	(Earliest) Priority Date ( <i>day/month/year</i> ) 21 June 2002 (21.06.2002)
Applicant MASSACHUSETTS GENERAL HOSPITAL		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 1



as suggested by the applicant.



None of the figures



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/18053

## Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

### NEW ABSTRACT

The present invention relates to medical implants that comprise crosslinked polyethylene (UHMWPE) (10) that is pressed into a consolidated form (15) in contact with another piece (such as a metallic mesh or back, a non-metallic mesh or back, a tibial tray, a patella tray, or an acetabular shell) (20) thereby forming an interface, and a hybrid component (30). Also disclosed herein are the methods of manufacturing and sterilizing such medical devices and materials used therein.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/18053

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : B29C 43/18, 43/20; A61L 02/08, 9/22, 31/12

US CL : 264/112, 250, 273, 274, 319, 320; 526/352; 623/18.11,19.11,20.11,20.14,22.11,23.11; 128/898; 422/28

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 264/112, 250, 273, 274, 319, 320; 526/352; 623/18.11,19.11,20.11,20.14,22.11,23.11; 128/898; 422/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST and WEST**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,879,400 A (MERRILL et al.) 09 March 1999 (09.03.1999), column 3, lines 30-50, column 6, lines 40-45, claims 1-20.	1-185
Y	US 6,245,276 A (McNULTY et al.) 12 June 2001 (12.06.2001), see entire document.	1-185
Y,P	US 6,547,828 A (SCOTT et al.) 15 April 2003 (15.04.2003), see entire document.	1-185
Y,P	US 6,566,451 A (WANG et al.) 20 May 2003 (20.05.2003), see entire document.	1-185

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

07 October 2004 (07.10.2004)

Date of mailing of the international search report

18 OCT 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner of Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Angela Ortiz

Telephone No. 571-272-1700